

ABSTRACT

The present invention includes a method of fabricating a piezoelectric composite device comprising steps of (a) disposing a first layer of electrically non-conductive film over the first layer of tape; (b) disposing a first electrically conductive lead over the first layer of electrically non-conductive film; (c) disposing a piezoelectric wafer over the first electrically conductive lead and the first layer of electrically non-conductive film; (d) disposing a second electrically conductive lead over the piezoelectric wafer; (e) disposing a second electrically non-conductive film over the second electrically conductive lead and the wafer, wherein the layers of electrically non-conductive film, the electrically conductive leads, and the wafer form a laminate assembly; and (f) consolidating the laminate assembly at a predetermined temperature and pressure. The present invention also comprises a highly flexible piezoelectric composite device made by a thermoplastic process that consolidates the laminate assembly and forms a hermetic seal.